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AIRPORT



# ARCHITECTURAL CONCRETE



VOLUME EIGHT

NUMBER THREE



# Public Service

Jacksonville, Fla., Municipal Airport serves one of the nation's busiest commercial and military aviation centers. The new administration building (page 3) facilitates efficient operation of this important airfield.



Shortage of office space in Tallahassee, Fla., was causing inefficient scattering of state offices and bureaus. This problem was solved by construction of the State Administration Building (page 5), which has aided greatly to expedite the increased war traffic.



Recent industrial expansion made it necessary to build an adequate county courthouse at Vancouver, Wash., one of the oldest cities in the West (page 8).



New office building, highway garage and shops at Laurel, Md., (page 11) help to "keep 'em rolling" over one of the most vital highway transportation systems in the country.



Hangar and office building, completed prior to United States' entering the war, make Memphis Municipal Airport (page 12) better able to handle increased emergency traffic.





# Architectural CONCRETE

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## Jacksonville Municipal Airport

By JEFFERSON D. POWELL\*, A.I.A.

WITH the official opening of the Jacksonville, Fla., Municipal Airport Administration Building on last December 28, this city came of age as a recognized aviation center. And it was about time, for Jacksonville in these last few years has come rapidly forward both in commercial and military aviation. The two commercial lines serving the city operated 27 scheduled flights daily, and one of the lines—National Airlines—uses Jacksonville as its home office. As Jacksonville is in the vicinity of one of the largest naval air training centers in the country, military air travel by commercial lines had necessarily increased.

A completely equipped administration building was essential to efficient operation of air transportation here. It was needed to centralize and stabilize the services and effect economies in time, money and personnel. The new building is a structure of modern design and of modern construction. It is built of architectural concrete and its form unmistakably suggests its use as an airport operations building. The central portion is two stories high with a third-story penthouse structure for the radio room, which in turn supports the control tower. The spacious lobby is two stories in height with a balcony running around three sides at second-story level. Weather Bureau, Civil Aeronautics Authority and other offices are located on the second floor.

Flat roofs of the north and south wings will be used as observation platforms.



*Main entrance to Jacksonville Airport.*



The north wing houses the airport restaurant. Its large window areas give a splendid view of all activities on the landing field. The south wing contains a first-aid station, post office mail room, air express room, pilots' locker rooms and the airport manager's office.

On two sides of the lobby and waiting room are ticket counters and radio rooms of Eastern Airlines and National Airlines. Provision is made for offices of an additional air line when such service is enfranchised in the future.

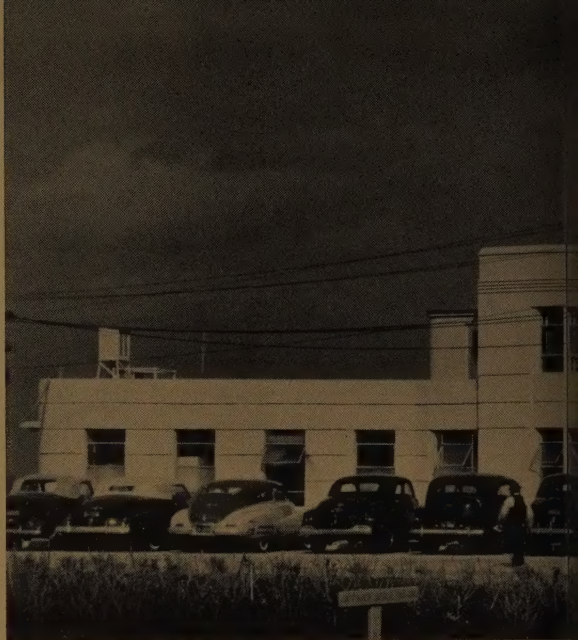
The airport building was a joint project of the city and the Work Projects Administration. Its requirements were largely determined by the careful planning of T. C. Imeson, airport commissioner; W. E. Sheddan, city engineer; and Major Herbert A. Maloney, airport manager. Their object was to achieve as complete facilities as allowable funds and close planning could provide. Architectural concrete was an obvious choice of building material since it combines the advantages of firesafety, durability and excellent appearance with adaptability to construction by comparatively unskilled labor.

Although the building is essentially a straightforward functional design, it was not costly to enrich the structure with appropriate decorative detail. Interesting architectural features on the corners of the main front of the building are two sculptured eagles with outspread wings.

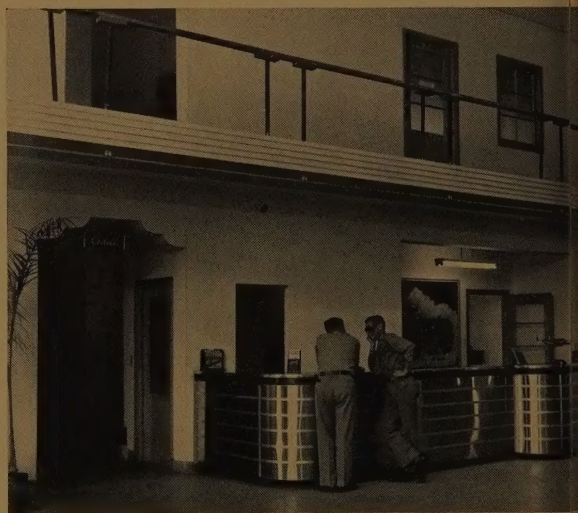
Over the main entrance from the landing field, sculptured panels depict aviation in war, travel, commerce and industry. The central sculptured panel reveals the seal of the City of Jacksonville against an air insignia background.

Construction was carried out in rapid time, but the building was not completed before priorities on critical

*Interior view showing entrance to restaurant and one of the airline ticket counters. Priorities delayed delivery of metal handrail for balcony but it has since been installed.*



*The central portion of Jacksonville Airport is two stories high.*



*A broad concrete apron fronts the field facade of the building which, like the front of the building, has well-executed molded concrete details.*







full height and offices at second story accessible from balcony. One-story portions house a restaurant and other offices. Jefferson D. Powell, was the architect. The building was erected by WPA labor.

materials delayed delivery of some decorative features such as handrails, ornamental fences and fixtures. Since the photographs used here were taken all materials required to complete the building have been obtained and installed.

What is important now is that Jacksonville, at the moment when transportation is more vital than it has ever been in the history of the nation, has an airport building that is ready to serve day and night.

## Administration Building—Tallahassee

By JOHN F. REYNOLDS, CONSULTING ENGINEER\*

ABOUT three years ago it became very apparent to civic leaders of Tallahassee, Fla., that various departments of the state government which should properly be located in the capital city were dispersing throughout the state. An investigation at once confirmed what many had suspected: office space in the city was inadequate for expanding government services.

Realizing that Tallahassee faced certain civic responsibilities as the capital of Florida, and that the entire economic welfare of the city was closely linked to the purchasing power of state and federal employes, it was decided that the city, itself, should sponsor construction of additional office facilities. To finance the structure it was proposed to issue revenue certificates to be retired through office rentals. At a special election registered voters approved the bond issue by a ratio of 5 to 1.

Our firm was selected for the engineering and architectural work for the project and Gilbert Stanley Underwood, Washington, D. C., was retained as consulting architect.



Selection of architectural concrete for the building was based principally on the economy of construction and maintenance which this material affords.

The problem confronting the designers was to provide a four-story structure, 225x50 ft., with two wings 50 ft. wide extending out from the main building for about 39 ft. at each end to form a shallow U. This layout provided for 59,250 sq.ft. of floor space. Since the office building was to be located at the center of a group of government buildings, the architectural design was necessarily monumental in character although every effort was made to keep the lines of the structure as simple as was consistent with its location and function.

Chief decorative details are horizontal and vertical rustications which are located where the Presdwood panels, used as form liner, were joined. The vertical fluting under each window was formed against milled wood pieces nailed to the forms. The great seal of the State of Florida was cast on the front facade of each wing by means of plaster waste molds.

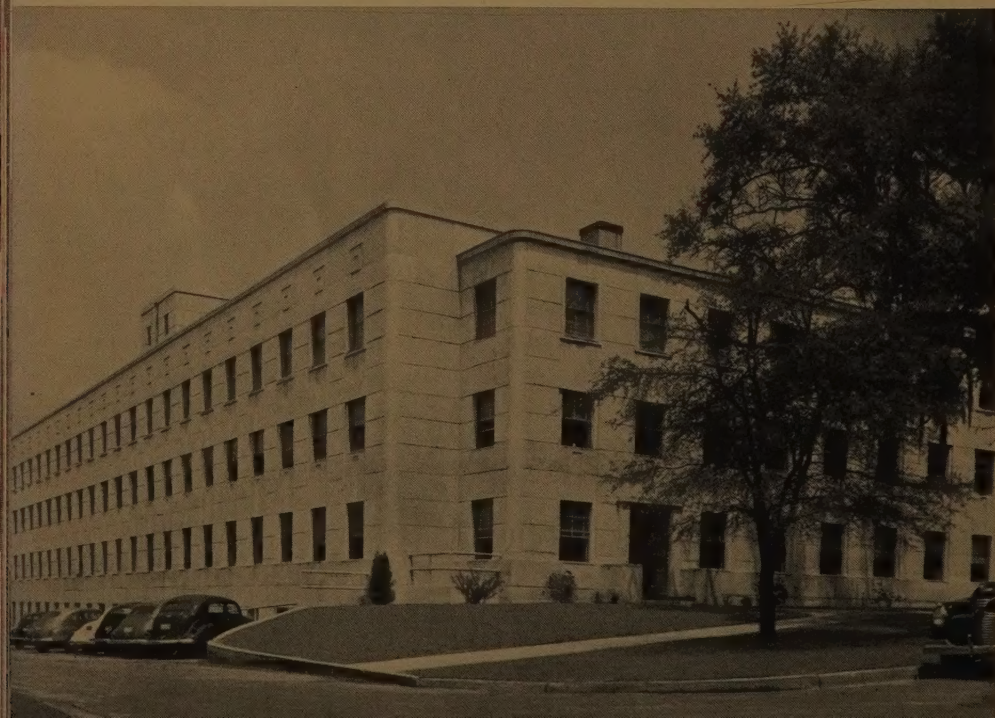
Exterior walls are 12 in. thick, reinforced with two curtains of  $\frac{3}{8}$ -in. round bars on 12-in. centers vertically and horizontally. When forms were removed, the walls were washed with a solution of muriatic acid and then were brushed with a sand-cement grout which was rubbed off with burlap leaving the surface clean and uniform in color.

Interior faces of the walls were furred and plastered. Permanent interior partitions were built of hollow tile and finished with plaster. All other partitions are movable steel partitions with hollow steel doors. All windows are aluminum double-hung sash.

Trim around both the exterior and interior of entrance is marble which is also used about the elevator shaft. Lobby and hall floors are terrazzo. Linoleum is used in offices except on the ground level and third floors where the concrete is not covered.



*Wing of the Florida Administration Building reveals careful workmanship in forms and placing concrete. The seal was cast in plaster waste molds.*



*Side and rear view of the building shows it to be a large structure of well-integrated concrete. Almost 60,000 sq.ft. of floor space is provided.*





*... facade of Florida Administration Building  
... ert Stanley Underwood, Washi...*



*Main entrance (below) shows the simplicity of ornamental detail  
in keeping with the modern lines of the building.*

*...rior walls are 12-in. thick concrete.  
...ls were finished by washing with  
...iatic acid followed by brushing  
... a sand-cement grout which was  
...ved with burlap. Finish surface is  
...th and uniform in color.*



Three figures, molded with the concrete  
wall, symbolize the early history  
of Clark County, Wash. This is the main  
entrance to the new county courthouse  
in Vancouver, Wash.

## Courthouse for Clark County, Wash.

BY DAY W. HILBORN\*, A.I.A.

ABOVE the main entrance to this building a group of vigorous, muscular figures stands in strong relief. Two trappers and an Indian have arrived in a canoe and have just stepped ashore. Such sights were common in the early days of this community for here in 1825 Dr. John McLoughlin, head of the Hudson's Bay Co. in the Columbia River basin, built Fort Vancouver and established headquarters for their fur trading in the Pacific Northwest. This settlement marked the beginning of Vancouver and makes it the oldest city in the State of Washington. Portland, Ore., on the opposite side of the river, in later years has far exceeded it in size, yet Vancouver has always enjoyed a steady,

\*Vancouver, Wash.

healthy growth. In recent years it has had a pronounced industrial development. It is as a reminder of what now seems a half unreal, half incredible past that this panel was designed and made a part of Clark County's new courthouse.

The old courthouse of brick and frame, after long years of useful service, had become thoroughly outgrown and obsolete, and in 1940 the county commissioners decided to build a new building. The writer was commissioned to prepare the plans. It was desired that ample provision should be made for all the normal county functions, and that consideration be given to future growth and expansion. Construction was to be fire-resistive, of course. At the same time it was necessary that costs be held to a low figure.



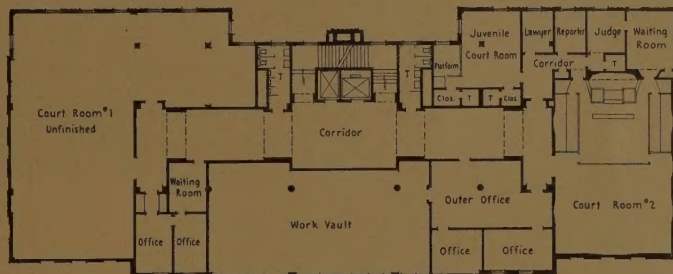


Clark County Courthouse is modern in design. Fluted window spandrels, set back from the plane of the columns and painted grey-green, give strong vertical feeling to the walls. The building was designed by Day W. Hilborn, architect, of Vancouver, and built by Ross B. Hammond Co., Portland contractor, for \$450,000.

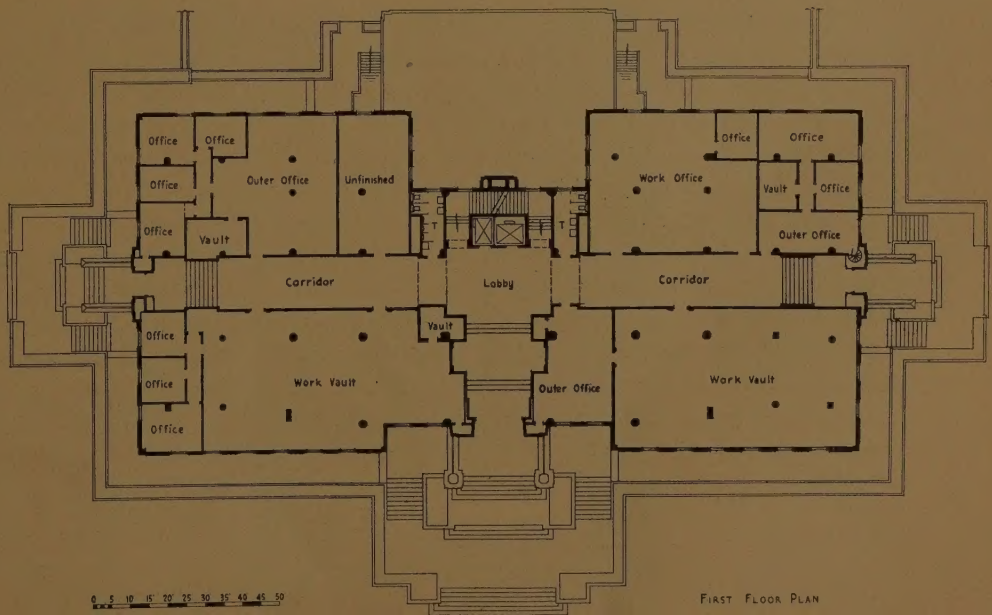
As the funds were not available for more elaborate work.

Under these conditions the design shown was developed. Reinforced concrete was chosen for the structural material and it was the natural consequence of this primary decision that architectural concrete was selected for the exterior.

As the several photographs indicate, reliance was placed on the grouping and arrangement of the main masses for obtaining dramatic effects, since even with the painting of the spandrels extreme simplicity is the keynote of the treatment. A very narrow coping with slight offset was used along the parapets to define their termination, but otherwise emphasis was placed upon verticality. The spandrels are set back from the plane of the columns and, as noted above, are vertically fluted. Their dark-colored masses spaced vertically



FOURTH FLOOR PLAN



FIRST FLOOR PLAN

0 5 10 15 20 25 30 35 40 45 50



*Eight-inch rough-dressed boards give a vigorous character to the walls. Great care was given to keeping construction joints truly horizontal—with excellent results as the photographs reveal.*



between the even darker rectangles of the window openings are in marked contrast with the unbroken sweep and uplift of the light colored piers.

The historical panel, the bronze lamps beside the doorway, bronze trim of the door and the grille work of the window above constitute the sole decorative ornamentation of the exterior. With this may possibly be included the broad ascending steps with their low, flanking pylons.

Wood forms were employed both for the spandrels and the piers. Eight-inch rough-dressed boards gave a pleasing texture to the piers, and the faint horizontal lining resulting from the joints between the boards avoids the monotony of large, smooth surfaces. The figures of the historical panel are integral with the wall, having been formed in waste molds. Only the trapper's musket is a separate piece.

Sometimes architectural surfaces are marred by carelessly made construction joints. Even when surfaces are painted

the telltale irregularity of such jointing cannot be concealed and constitutes an unsightly yet wholly unnecessary defect. Whatever material is used for forms, construction joints should be kept truly horizontal and, wherever possible, the joints should be made to coincide with floor joints. In this building all joints were made to come at the same level. In the 8-in. form boards and, thanks to the full cooperation of the contractor, a highly satisfactory result was obtained. The joints are not completely concealed but they are everywhere straight and nowhere conspicuous. The piers are finished with a paint of greyish cream color that may be called a warm sandstone. The spandrels were given a pastel shade of fairly dark grey-green.

This building was erected and equipped at a cost of slightly under \$450,000. Ross B. Hammond & Co., Portland, was the general contractor. The writer, as architect, designed the building and supervised the construction.



# District Highway Office— Laurel, Md.

JUST before the war the Maryland State Road Commission erected an architectural concrete office building, a concrete masonry garage building housing 20 units, and a concrete masonry shop building for the Third District, at Laurel, Md.—all of which are now serving to keep an important link in our highway transportation system at high efficiency.

Concrete was selected because it is a serviceable type of construction and economical to build. All the structures were designed by the Bridge Department of the State Roads Commission; Walter C. Hopkins, bridge engineer.

The office is a modern structure of simple lines. Walls are formed against plywood to produce a smooth surface which was relieved by panels of vertical fluting in the parapet of the main facade. This fluting was formed by inserting wood strips in the forms and, as the photograph indicates, the detail is sharp and clean. Exterior wall finish was white Portland cement paint.

The entire plant consisting of the three buildings was built at a cost of \$46,450 by Richard F. Hollyday, contractor, of Baltimore. E. G. Duncan is district engineer of the Third Maryland District.



*The office for the Third District of the Maryland State Roads Commission is a modest concrete structure using entrance reveals and fluted bands in the parapet as the only decoration. Designed by the Bridge Department of the Commission, it was built along with a 20-unit concrete masonry garage and a shop building for \$46,450.*





*Chicago & Southern Airlines hangar and office building at the Memphis Municipal Airport. These structures, planned by and built for the City of Memphis, are leased to the airline. Both are architectural concrete, formed against plywood. Designs were prepared by the engineering staff of the city public works department. WPA built both structures for a total cost of \$256,932.*

*Main entrance to office building emphasizes the simplicity of the design. The concrete canopy is ornamented only by vertical rustications.*



## Office and Ha

By D. C. MILLER\*

AUGMENTING the facilities at busy Memphis Municipal Airport, which is handling its share of vital time transportation at this terminal, are two new buildings—a large hangar and an office structure. These structures were planned and sponsored by the city and erected by WPA. They are leased to Chicago & Southern Airlines, one of the major air routes using the Memphis port.

Following a precedent set up by the construction of the Administration Building in 1938 (see ARCHITECTURAL CONCRETE, Vol. 5, No. 1) these new buildings are of architectural concrete. Both are sturdy, simply designed buildings planned for long, economical service.

\*Commissioner of Finance and Institutions, City of Memphis.





# Memphis Airport

Fortunately the buildings were sufficiently completed for use by last August, at which time they were dedicated. However, the war has made it necessary to forego using the basement of the office building as a restaurant as planned, and it will provide additional needed office space for the duration.

The office structure is 45x90 ft., two stories high with full basement. The hangar is 160x130 ft. with sliding steel doors at each end. Along the south side of the hangar is a one-story lean-to 36 ft. wide, and along the north side is a two-story lean-to which is 24 ft. wide. The latter is used as office space.

Plywood form lining was used on both the hangar and office building to produce smooth surfaces of excellent appearance. Decorative detail was naturally used sparingly for the sake of economy as well as appropriateness, and is confined to corrugated spandrels under all windows and a dentil band around the canopy of the office building. Exterior finish was obtained by rubbing.

Care was used in the construction of the forms with the result that all details are sharp and clean. Two control joints located in the long main facade of the office building are neat in appearance and have functioned as anticipated. Both structures have given excellent service since their opening, and the tenant is particularly pleased with the accurate control of the air cooling and heating in the office building.

The structures were designed by the engineering staff of the Memphis Public Works Department and were built under the supervision of W. B. Fowler, city engineer.

Cost of the hangar was \$173,443 and the office building \$83,489.



*The hangar, accommodating several planes, is flanked by lean-to structures. Walls are smooth-formed. Ends are closed by sliding steel doors.*



# War Industry

The Boeing Aircraft Co. office building employs architectural concrete for interesting appearance as well as for economy and firesafety. Treatment given the central mass suggests the outline of an airplane—and a big one such as the Boeing Flying Fortresses that have been rapping the Japs in recent Pacific battles.

★

Ducommun, one of the oldest metal supply houses on the West Coast, completed its new centralized warehouse and fabrication plant in time to service scores of war industries with vital metals (page 16). A feature of this building is use of reinforced concrete to produce a saw-tooth roof at a great saving of critical materials.

★

Local materials, local labor and community ownership are responsible for the Community Industries Building, at Sullivan, Ill. (page 18). Built to centralize a number of small local industries, it is now being converted to war work in some departments.

★

The E. F. Houghton & Co. office building in Philadelphia (page 20) was conceived for peacetime efficiency and comfort, but with the war just off the East Coast, workers in this building have an added feeling of security because of the firesafety of the concrete construction. About 90 per cent of the work done here is for war products.

★

On pages 22 and 23 are five buildings erected during the last months of peace and now busily engaged in the battle of production of war materials and food.



In the article on International Business Machines' newly constructed machine shop building at Endicott, N. Y. (see ARCHITECTURAL CONCRETE, Vol. 8, No. 1) the fact that Charles H. Higgins, of New York, was architect for two of the older IBM buildings (above) was inadvertently omitted.

## Office for Boeing Aircraft

BY RICHARD ELLIS\*

A PART of the recent plant expansion program of the Boeing Aircraft Co. was construction of an executive office building. This is a story and basement reinforced concrete structure, 50x225 ft. in plan.

It is essentially utilitarian in nature, yet due to the great adaptability of concrete to architectural uses, it was possible to give the building a dignified appearance by comparatively simple and inexpensive treatment of the central main entrance in conjunction with direct straightforward treatment elsewhere.

The horizontal bands of the spandrels are accentuated by the uninterrupted continuity of the windows. This result is obtained by setting the columns back from the face of the spandrels and carrying the glass past the columns, thus maintaining an identical mullion pattern from end to end. The primary purpose of the large window areas was to provide a maximum of daylight in the interior of the building. The locality in which the building is situated has many cloudy days in the winter season and generous lighting is highly desirable. Whether the glass is carried past the columns or is stopped short of them is, of course, a minor matter with respect to lighting but does have an important bearing upon appearance.

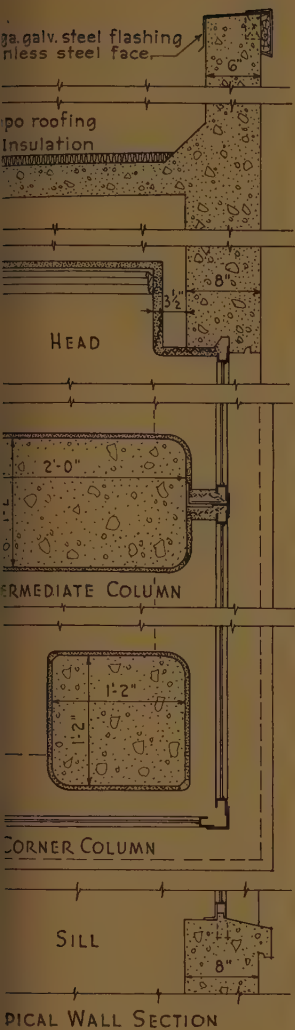
From the standpoint of appearance, the treatment given the central entrance results in an interesting suggestion of the outlines of an airplane. W

\*Acting district manager, The Austin Co., Seattle.

*New executive office built for Boeing Aircraft Co., although primarily a utilitarian building, gains its appearance through the use of architectural concrete. Designed and erected by The Austin Co.*



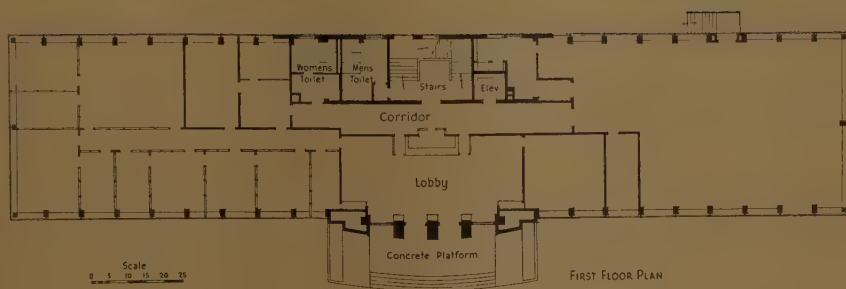




but pleasing and dignified appearance.  
J. McNichol is chief architect.



three pylons forming deep recessed





at later times a rearrangement of  
 restricted.  
 the exterior surfaces. After the con-  
 crete was poured and subsequently dried, the  
 finish of silvery grey color.  
 designed and built by the Seattle dis-  
 tribution Co. D. J. McNichol, chief archi-  
 tect, determined the architectural treatment

## Metals

new business enterprises started in  
 and most of them were concerned  
 with the fabulous hills and rivers of the  
 old forty-niners who didn't dig  
 themselves in a good position to get  
 the gold. Louis Ducommun who opened  
 in Los Angeles that year with the sound-  
 ing of picks, pans and other tools. It was  
 absorbed within a few years Ducommun

old rush was Ducommun, large Ware-  
 house. Now its new streamlined warehouse at  
 of concrete serves vital war needs.

*The warehouse was built in 1940, and in 1941 a part one- and part two-story building was completed for offices, stockrooms and assembly plant.*







General view of the plant which was designed by Albert C. Martin, Los Angeles architect. Joshua H. Marks-Charde Co. was the contractor.

Company was still in business, having added a line of wallpaper, matches and jewelry to the hardware. In 1942 Ducommun Metals & Supply Co. is in more business than ever before and now operating the largest metal distribution system on the West Coast and feeding materials to war industries from a huge seven-acre plant and warehouse which was opened last year.

The new Ducommun building in Los Angeles centralizes the company's activities in one location. A huge warehouse was erected at the site in 1940, and the following year a part one- and part two-story building was completed for offices, stockrooms and assembly plant.

The latter structure is a modern, streamlined architectural concrete building which was designed with the idea in mind that industry has a share in the responsibility for improving the appearance of the community. The one-story portion of the building is 240x150 ft. and the two-story section is 240x144 ft. Exterior walls are natural concrete finished with a waterproofing brush coat.

Foundations of the two buildings are cast-in-place concrete piles. The first floor of the office-warehouse building, which is used for warehouse and shipping operations, is a concrete slab on fill. Second floor is flat slab construction.

The one-story warehouse also has a concrete slab floor on fill and reinforced concrete walls.

Roof of the main building is reinforced concrete saw-tooth construction designed to provide satisfactory daylight-

ing in the office section. The roof consists of 2½-in. reinforced concrete slab carried on 8-in. concrete joists with 2 in. of vermiculite concrete insulation under the composition covering. Windows, located on the north side of each bay, give diffused light. Suspended ceilings under each bay were dropped to a carefully calculated angle for best light reflection and were plastered with acoustic plaster on metal lath.

Forms for all wall and spandrel areas were made of Douglas fir ¾x3¼-in. dressed and matched flooring. Forms for entrances, piers and pilasters were plywood.

First floor slab was laid in 48x50-ft. sections with no jointing except the cold joints between sections. No expansion joint filler was used. A crushed quartz aggregate was used in the floor finish. The slab is reinforced with No. 8 gage 6x6-in. wire mesh. After 10 months of use there is no evidence of cracking.

Floors in the lobby are finished with terrazzo. In conference rooms and executive offices the concrete floors are covered with carpet and in general offices with asphalt tile.

The interior of the building is fitted with the most modern facilities including an extensive system of fluorescent lighting and complete air conditioning. A pneumatic tube system connects all departments.

Joshua H. Marks-Charde Co., of Los Angeles, was the contractor. J. Edward Martin was the architect's superintendent.





*Designed to shelter a variety of small industries such as candy, dressmaking and packaging, certain departments of Community Industries Sullivan have now turned to war production. Community Industries is operated by the Church of Christ, of Sullivan; the new concrete building was designed and built by members who also own the enterprise.*

## Industrial Building—Sullivan, Ill

BY LEAH L. HARSHMAN

THE Community Industries, of Sullivan, Ill., a small town in the central part of the state, is an interesting and successful experiment in cooperative community enterprise. It developed as a method for keeping members of the Church of Christ off the public relief roll; it has resulted in bringing a stable industrial economy to a town which previously had existed as the market center of the surrounding agricultural region. Its success is evident in the form of a two-story architectural concrete building which houses a variety of manufacturing processes in normal times, but which has now been converted to certain war production.

This church community, a nondenominational group, was started by the Rev. S. R. Harshman in 1871. Since his death in 1912, one of his daughters has assumed the pastorate of the congregation.

It was always a principle of the church to help its members and to keep them from becoming public charges. Thus the congregation of the church, practically all of whom are engaged in some phase of the construction industry, em-

ployed church members; other members engaged in business or farming did likewise.

The serious depression of the early 1930's, however, brought employment in Sullivan to a virtual standstill. Young people started to leave the town for distant cities to obtain employment. There was little work in Sullivan aside from that provided by relief projects and these, the church





people believed, did not contribute to lasting prosperity. Various skills of church members were then pooled to make products that could be sold outside of the community. It started in a modest way, with women experimenting with candy making. Eventually several candy bars were developed which earned wide public popularity and the candy business prospered. Similarly, women skilled in dress-making turned out dresses for the trade, at first low-cost cotton patterns, then more expensive dresses. A line of dresses was finally established which is known in many of the large markets of the country. Another industry developed as a result of these two—that of packaging manufactured products. This involved designing, then ultimately printing, die-cutting and fabricating packages. By 1939 some 50 members of the church community were engaged in this work and a gross business of \$90,000 was being handled annually. However, the various manufacturing units were scattered in buildings throughout the town, making operation more difficult to manage than if they were centralized.

At this time it was quite evident that the facilities of the Harshman construction industries and the skill of the church members in the building trades could be put to work on the construction of an industrial building. This was the course decided upon and a two-story structure was planned. One of the members who is now in charge of the design department of the grouped industries. The Sullivan Concrete Works, a Harshman enterprise, did the concrete construction, while other members of the church did the rest of the work in which they were skilled. By this cooperative effort the building was completed without the formality of a contract for any part of the job.

Architectural concrete was the logical material of construction for several reasons. Members were familiar with its use. It required chiefly local materials, hence there would be no costly transportation involved in bringing materials to the job. It would provide a durable structure with heavy-duty floors for the machinery and firesafety to protect the community investment. And another important factor which influenced the use of concrete was that it would require the use of the least amount of skilled labor as compared with any other type of construction considered.

*Essentially an industrial building, care was taken to erect a structure of distinctive appearance since it is located close to a residential area.*



*Decorative detail was confined to molded mullions and paneled spandrels. The lettering on the canopy was cast in place. The building was finished with white portland cement paint.*

The building is 80x160 ft. with concrete frame, walls, floors and roof. Foundation walls are 12 in. thick with 8-in. walls above basement-story level. It is modern in design with decorative detail limited to fluted mullions and simply-formed spandrels. Flat surfaces were formed against plywood and were finished with two coats of white portland cement paint. Interior walls are also painted.

The war has made it necessary to change some of the work carried on in various parts of the building from peace to wartime manufacture. There is included a machine shop for the repair of equipment and for the manufacture of special machines developed by Community Industries. All operations are directed from a group of offices located at the front of the building, giving easy access to all departments. Here also new designs and processes are developed.

There is naturally great community pride in this establishment, for this sturdy, pleasing looking building is a symbol of hard-won security.

While the actual cost of the completed building was approximately \$55,000, a recent estimate by an architect places the valuation at \$80,000.





*E. F. Houghton & Company's new office building in Philadelphia was opened the day the United States declared war. Although designed for peacetime use, the building houses 90 per cent war work and would afford considerable protection in an air raid. Designed by Gleeson & Mulrooney, architects, it was built by Joseph R. Farrell, contractor—all of Philadelphia.*

## Office for E. F. Houghton & Co.

BY RAYMOND T. GLEESON\*

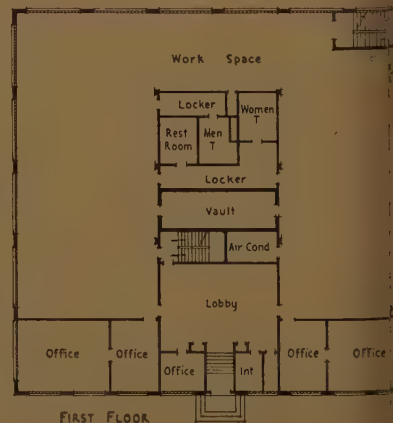
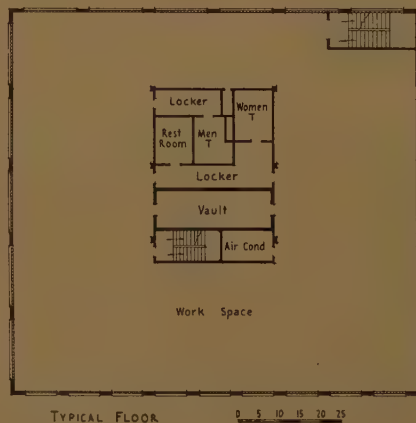
ON THE day the United States declared war on the Axis nations, E. F. Houghton & Co. officially opened their new office building at 303 West Lehigh Ave., Philadelphia—believed to be among the first architectural concrete structures of major proportions in this city to be both designed and constructed by Philadelphia firms.

While need for it became imperative because of increasing defense business, the new structure was designed with no thought of war-safety features. However, now with the war at the very gates of the country,

\*Gleeson & Mulrooney, architects, Philadelphia.

Houghton office workers can find comfort in knowing that they are housed within an all-reinforced concrete structure which by virtue of the refuge space in the center of each floor would afford considerable protection in an air raid.

When machinery, oil drums and tanks began to crowd





re personnel out of quarters occupied by the Houghton since 1898, our firm was commissioned to draw plans for a new, modern, functional office building. Instructions given to the architects by the owners were: "We want the most modern and functional building possible. We do not want it freakishly modern nor aggressively modern. Heaven knows, there is enough ugliness of last century in this neighborhood already. Let us have something slick and smart and efficient, but also good looking." We, as architects, and the builder, Joseph R. Farrell, of Philadelphia, suggested cast-in-place reinforced concrete for its possibilities for monumental effect and economy. The owners were a bit skeptical because there are thus far only a few examples of this type of construction in Philadelphia; they suggested a brick facing. Bids were taken both ways and concrete was lower by 10 per cent, and was accepted. The design was governed by Greco-Roman classic proportion on the one hand and by modern material techniques on the other. Ornamentation is simple but very effective in breaking the plain surfaces. The structure imparts an impression of strength.

So well pleased with their new soundproof, firesafe, air-conditioned offices are officials of the company, that Major E. Carpenter, president, wrote in the company's well-known house organ, *The Houghton Line*: "All *Line* readers visiting Philadelphia are welcome to inspect our new quarters not only because we are proud of them, but because they are really the last word in modern office planning, construction and equipment. For those interested in future expansion or improvement of their own office facilities, the move to Kensington may be well worth the time it takes." Construction methods did not go beyond ordinary practice. Each lift extended to the sill line—about 2 ft. above the floor—and the plywood forms moved up from lift to lift. Decorative detail was cast in place. Fluting was formed by means of corrugated iron lining, and the small cantilever copy over the main entrance likewise was cast in place. Floors and roof are concrete joist construction with a 6-in. slab, using 31-in. metal pans. Ready-mixed concrete was brought to the job and vibrated in the forms.

The new structure is completely air-conditioned and insulated against street noises. Instead of windows, sections of translucent glass brick set so that they reflect light inward from a 6 ft. 6-in. level, and upward above that level. Fluorescent lights, placed in ceiling recesses, complement the natural light to the extent that interior photographs can be taken without the use of flashes. Temperature maintained between 68 and 70 deg.

Although actually designed for peacetime use, the new Houghton building is playing a vital role in the war effort. The personnel is working more than 90 per cent on war

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*Reception room (above) and cashier's cage reveal roomy, comfortable interiors which Houghton officials say permit more and careful work by staff members.*







(Left and above) Factory and warehouse of the American Chain & Cable Company, Houston, Texas. Trademark was cast in place. Designed by Woltz & Willard, architects, and built by C. M. Davis, engineer and contractor—all of Ft. Worth.

## Built for Pe



Gone to war with other wire rope makers is John A. Roebling's Sons Company, Ft. Worth, Texas, for good appearance as well as firesafety and low cost of operation.



(Left and below) Office for Universal Mills, Ft. Worth, Texas, is architecture to match the appearance and economy of concrete mill and storage erected earlier. Woltz & Willard, architects; C. M. Davis, engineer and contractor—all of Ft. Worth.







(Top) Chemical laboratory for A. E. Staley Manufacturing Co., Decatur, a large food producing firm. This modern concrete building was designed by architects and engineers and built by J. L. Simmons & Co., of Decatur.

## Used for War



branch office and warehouse in which architectural concrete is used by C. M. Davis, engineer and contractor.

(Bottom) Working to feed America and the world is Corn Products Refining Co. this group of manufacturing buildings at Pekin, Ill. Designed by company architects they were built by Bedford Construction Co., of Chicago.





# Concrete Design and Technique

The use of absorptive form linings to produce interesting and durable architectural concrete surfaces is discussed on this and the following page. Undoubtedly the future will see more extensive use of these materials. Most promising results have been obtained where there has been careful supervision. The use of absorptive linings should not be considered a cure-all or a way to escape the penalty of violating the fundamental principles of good concrete making. Additional information on this new development may be obtained from the following sources:

"Concrete Surfaces Improved by Absorptive Form Lining", *Engineering News-Record*, January 4, 1940.

"Absorptive Form Lining", *Western Construction News*, February, 1940.

"Weather-Resistant Surfaces on Concrete Created by Absorptive Form Lining", *Concrete*, March, 1941.

"Use of Absorptive Wall Boards for Concrete Forms", *Journal of American Concrete Institute*, March, 1941.

"Points to Watch in Use of Absorptive Form Lining", *Concrete*, June, 1941.



*Sandblasting a high wall of a powerhouse formed with absorptive lining*

## Absorptive Form Lining

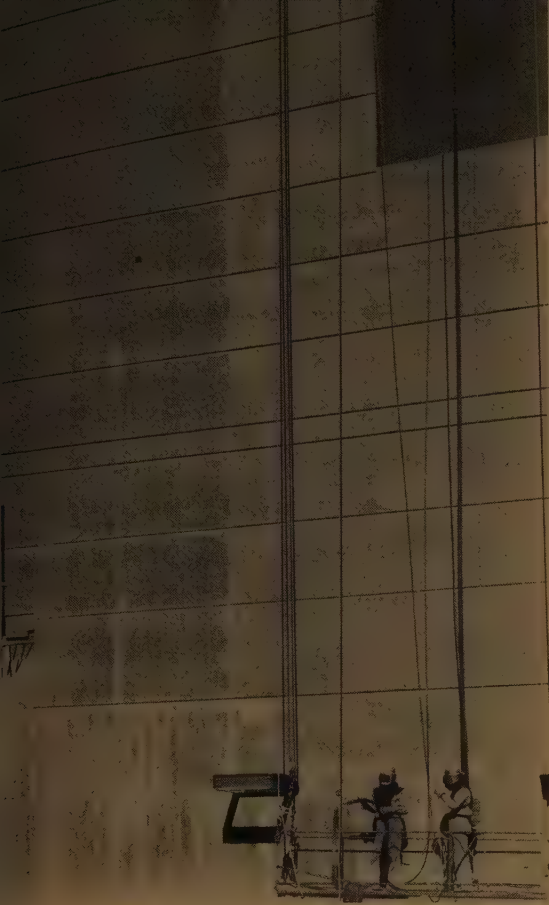
### Its Application to Architectural Concrete

By E. N. VIDAL \*

WCOMER in the field of concrete construction—absorptive lined and formed surfaces—is gaining rapid prominence. The continuing use of concrete, not only as a structural material but also as a medium for architectural expression, has created a demand for pleasing appearance and for increased resistance to weathering and abrasion. The development of absorptive form lining has followed this demand. A study in field and laboratory has borne out the potential ability of this process for improving concrete surfaces. Investigations and generalizations of construction practices have been reported in detail in previous issues and need no repetition here (*see bibliography*). However, the particular application of form lining to architectural purposes is worthy of special mention.

Of the linings used to date, which incidentally have amounted to over 100,000 sq. ft., the Bureau of Reclamation, Denver, Colo.





*Hand area, which is finished, indicates the uniformity of color which may be produced by this process.*

Several million square feet, have been of the fiberboard type. These have been manufactured by members of the insulation board industry and the products have been similar to ordinary insulation boards in common use. The texture of these boards and consequently the texture of the finished concrete, is that which may be imprinted in the rolling rans incident to the manufacturing of insulation board. The range of textures is wide and many surface effects may be obtained by arrangement with the fabricator.

*Concrete wall surface showing matte texture of absorptive form material. The rustications are 1 in. deep, the lower one concealing a construction joint.*



Although good appearance at construction joints is obtainable by careful use of absorptive lining, the joints may still be quite conspicuous on the hardened concrete surfaces. Therefore, where inconspicuousness of joints is desired especially, rustications may be formed in the concrete as shown in the accompanying illustration. With a little thought and planning during the designing stage, these rustications may be employed to obtain pleasing appearance.

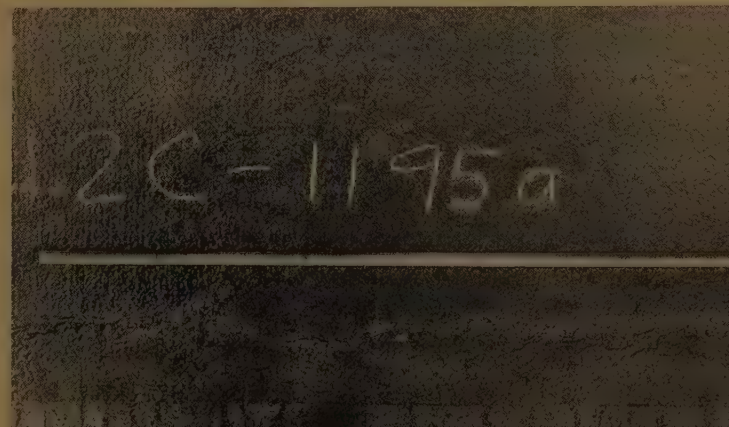
Concrete surfaces formed against absorptive form lining present a uniform appearance and an even texture. However, ordinary construction discolorations are abnormally conspicuous, and any discontinuity of the normal appearance and texture is accentuated to a degree not encountered on surfaces formed by ordinary methods. Curing water stains, patching, and construction marks of all kinds should be held to a practical minimum. If the utmost in architectural appearance is desired, the surfaces may be wire-brushed after the forms are removed or very lightly sand-blasted after completion of the curing period.

Impressive results may be obtained by the sandblasting method which has been found to be most effective if performed as soon as possible after curing has ceased. Fine sand and a low blasting pressure appear to give best results with the gun nozzle held at a flat angle. On a recent power plant structure which is shown here, short passes vertically were followed by sweeping strokes horizontally to do the job. The results speak for themselves and show clearly that painting or expensive superficial treatments like special rubbed finishes are not now and probably never will be required.

If patches are necessary, they may be blended with adjacent surfaces by firmly pressing or hammering a piece of the lining material against the freshly placed patching mortar. Matching color in the patch can be obtained by blending white cement with regular job cement in proportions as determined by trial.

The foregoing has been concerned only with the archi-

*Close-up view of the downstream face of a dam where concrete was placed under an overhanging form on a 0.7:1.0 slope. Upper part of picture shows surface formed with absorptive lining in comparison with surface formed with oiled-wood sheathing. Placement conditions were more conducive to formation of air and water bubbles in surface of concrete than normally encountered.*





tectural phase of the use of absorptive form lining. The increased durability, due to the withdrawal of water from the adjacent concrete by the absorptive medium, is very important and well worth the increase in cost. Laboratory tests have shown that the resistance to alternate cycles of freezing and thawing is increased materially. Tests also show that the improvement due to form lining is not limited to a skin effect, but penetrates into the mass, being pro-

gressively less effective with depth.

Absorptive form lining used under careful supervision is now accepted as a practical, proved method for eliminating voids and other common imperfections on formed concrete surfaces; for providing surfaces superior in durability and resistance as compared to concrete formed with wood or metal forms; and for securing a uniform, pleasing surface texture.

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## Concrete School Proves Economy and Safety

By LINDSEY MADISON GUDGER\*, A.I.A.

A SCHOOL building recently completed at Clyde, N. C., demonstrates how architectural concrete is particularly adapted to current conditions involving shortages of skilled labor and need for rapid, economical construction.

At the inception of this project the school board had

*New school at Clyde, N. C., was built by labor that had never before worked with architectural concrete. The excellent detail and sharp lines indicate what can be done with this material by common labor under good supervision.*



decided to build the structure of brick. Since this was a WPA project and no provision was made for skilled labor which would have been difficult to find even though additional funds had been available for it, some other method of construction was necessary. On the recommendation of this office and after a visit to the Asheville Auditorium (ARCHITECTURAL CONCRETE, Vol. 7, No. 2) which was thoroughly examined, the job was changed to architectural concrete. This not only made it possible to construct the building at once, but actually saved the sponsors a total of \$8,000.

Everyone concerned is extremely pleased with the results obtained in concrete. And it should be noted here that the men on the job—foremen and carpenters—had never worked on architectural concrete before. This is strong proof that any region, no matter how far from skilled labor sources and from supplies of fabricated building materials, can have permanent buildings of durable construction and excellent appearance.

We had very little difficulty in forming good concrete joints and horizontal construction lines, and found that the workmen on the job took a definite interest and pride in working out any problems encountered. Through the efforts of Porter McClure, job foreman, and the painstaking operation of all the men working with him, we were able to get walls true to line—so true that I would be willing to have a sight line taken along the front of this building with full confidence that only the slightest variations in the plan would be visible.

One incident occurred during the construction of the

\*Asheville, N. C.

rance details were formed with wood molds, the chevron motif  
g accomplished by nailing strips to the form face. Care in strip-  
forms was necessary to preserve the sharp detail.

ding that shows another definite advantage in the use  
concrete. After the walls had been constructed, and be-  
the floors were in or any intermediate stiffening or  
ping was constructed on the interior, the lot on which  
building was erected was severely flooded. At one corner  
he building, foundation soil was completely washed out  
footings for approximately 15 ft. along the end and  
it, along the rear of the building being left entirely ex-  
ed and 1 to 3 ft. above any supporting earth. Thus the  
ner of the building was cantilevered over a washed-out  
a with no support whatever.

Naturally, in a building constructed of unit masonry, the  
tion of the structure would have given way, making  
essary to rebuild at considerable expense to the owner  
to the architect for additional supervision. However  
building withstood this strain without developing  
le hair crack. Earth under the footings was replaced  
roughly compacted and construction proceeded without  
essive loss of time. This incident, although it was rather  
oying, was a source of great satisfaction to me in proving  
the strength of the material and the worth of the con-  
struction. In effect, the front and rear walls of this building  
ly constitute concrete beams 32 ft. deep and 13 in. thick  
lyde School was completed in 1941 and dedicated early  
1942. It was built at a cost of approximately \$130,000.

g front wall of the Clyde School will bear any kind of critical scrutiny, claims Architect Lindsey Madison Gudger, of Asheville, N. C. The  
ding was erected by WPA labor.







es (above and below) at an Eastern navy yard. These are typ  
ldings with concrete walls formed against plywood. They  
avy Civil Engineer Corps and built by Ralph S. Herzog, contra  
tos from U. S. Navy.





Warehouse building recently completed at an Eastern naval air station is architectural concrete. Designed by Giffels & Vallet, architects, Detroit, the structure was constructed by Doyle & Russell, Richmond, Va., contractors. Official U. S. Navy Photo.



Three views of reputedly the world's largest office building erected for the War Department. Above left is a portion of exposed concrete inner court wall. At right is detail of rough form marks and bead formed by chamfering. Below is court wall showing formwork in place. Designed by Office of Quartermaster General. Contractors were John McShain, Inc., Philadelphia; Doyle & Russell, Richmond, Va.; and Wise Contracting Co., also of Richmond. Photos from U. S. Army.





# Public Health

Essential in war or peacetime is adequate provision for public health; and none knows better than the American people how essential public health is to successful conduct of a war.

During the first World War, epidemics accounted for almost as many U. S. casualties as the war itself. Penetrating into remote regions of the country where medical and hospital facilities were lacking, disease was difficult to control.

Such appalling loss of life to disease should not occur during this war because within the past dozen years hundreds of hospitals have been erected in communities where there was none before.

★

The Alpena (Mich.) General Hospital described here serves a great semicircle of country.

★

In the middle of Texas' cattle country—at Baird—another hospital recently built brings modern health facilities to what in 1917 was an outpost region (page 32).

★

On pages 34 and 35 are some other hospitals—new, clean, firesafe concrete buildings—built in America's small towns and cities.

## Alpena Hospital Serves 120-Mile Area

By JOSEPH C. GODDEYNE, ARCHITECT\*

ALPENA, a thriving industrial community in the midst of northeastern Michigan's tourist and vacation area, has for the past year been served by a new architectural concrete general hospital. This hospital, accommodating 78 beds exclusive of the nursery, is not only a local institution, since Alpena is the largest community within a radius of 60 miles. The modern facilities of the hospital are available to the entire region.

Need for the hospital was felt as long ago as 1925, but it was not until 1938 that public sentiment was crystallized to the point of getting the job done. At that time various civic groups banded together to conduct a campaign for the hospital which resulted in public approval of a \$121,000 bond issue by a vote of 3 to 1. This sum was augmented by a PWA grant and the hospital was assured.

The choice of concrete as the architectural and structural medium was natural in view of the availability of excellent concrete materials in the Alpena region. Furthermore, a precedent for this type of construction was set in 1934 with construction of Alpena County Courthouse (see *ARCHITECTURAL CONCRETE, Vol. 1, No. 6*) in architectural concrete. And still more recent was the confidence of the hospital committee in concrete construction has been confirmed by the choice of concrete for a new high school in Alpena which is now reaching completion.

Execution of the hospital in concrete has attracted wide interest in the area. The simplicity and beauty of its detail, the disposition and depth of fenestration with resulting play of light and shadow, the sparkling appearance of the wall texture give a feeling of cleanliness and quiet repose.

\*Bay City, Mich.

*A public education campaign preceded building of the Alpena (Mich.) General Hospital. Financed by bond issue and PWA grant, architectural concrete was chosen for its economy and safety. Joseph C. Goddeyne, architect, of Bay City, Mich. Owens-Ames-Kimball Co., contractors, of Grand Rapids,*



considerable contrast to the somber, institutional-like structures which in the past have often characterized this type of building.

Not one crack has developed in the building. The walls are plumb, straight and true. Moldings and arrises are all sharp as it would have been possible to cut them in marble or stone.

Concrete floors throughout the structure are finished in various ways. Ground floor and basement, except for boiler, pump room, laundry and pump rooms, are finished with terrazzo. Terrazzo was also used in operating and delivery rooms, toilets, baths and utility rooms, not only for floors, but for wainscots. Patients' rooms, corridors, main lobby, examination rooms and sun rooms are finished with rubber tile cemented directly to the concrete slab.

Exterior concrete walls are insulated with 2-in. rigid insulation material which was inserted in the forms when the walls were cast. Exterior finish was white portland cement with blue trim for the sash. Interior walls were given two coats of lead and oil paint except in the doctors' lounge where the wainscot in the main foyer which are paneled in African walnut.

On close examination of the accompanying floor plans reveals an extraordinary solution of the modern hospital planning problem. The arrangements were planned for maximum efficiency in the operation of the various units. Equipment throughout is every bit as up to date as the construction and the plan layout. A great testament to the respect and appreciation of the public is that all of this modern equipment was paid for by private subscription. Actual construction cost was as follows:

General contract .....	\$139,970.10
Plumbing, heating and ventilating .....	30,101.92
Electrical work including fixtures .....	15,331.61
Elevator and dumb-waiters .....	8,070.00
Finish hardware .....	3,825.00
	<b>\$197,298.63</b>

Permanent furniture and equipment purchased competitively through specifications prepared by the architect cost \$38,448.71. Some of the patients' rooms and certain operating room equipment were furnished from the old hospital; and the X-ray machine was a gift from the former hospital board. The total cost of the building completely equipped was, therefore, \$235,747.34.

Actual cubage of the structure is 405,788 cu.ft. which is a cubic foot cost of 48.6 cents for the construction and 58 cents per cu.ft. for building and complete equipment. On the basis of 78 patients, the construction cost was \$300 per bed.

General contractor for the building was Owens-Ames-Whitcomb Company, of Grand Rapids, Mich.



*By the reuse of forms, repeated ornamental detail, as here in the rear entrance, adds very little to the cost of plain surfaces.*

## LEGEND

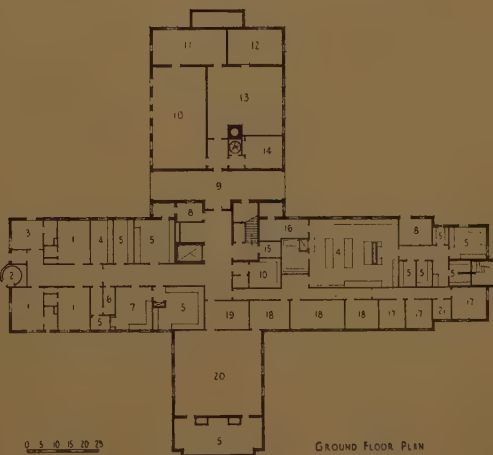
1. PRIVATE ROOM
2. FIRE CHUTE
3. NURSES' ROOM
4. KITCHEN
5. SUPPLIES
6. STERILIZER
7. NURSES' WORKROOM
8. RECEIVING
9. AMBULANCE ENTRY
10. LAUNDRY
11. PUMP ROOM
12. FUEL ROOM
13. BOILER ROOM
14. NECROPSY AND MORGUE
15. JANITOR
16. DIETITIAN
17. HELP'S BEDROOM
18. DINING ROOM
19. COAT ROOM
20. ASSEMBLY HALL
21. BATH
22. WARD
23. NURSES' STATION
24. CLINICAL RECORDS
25. WAITING ROOM
26. RADIOGRAPHY
27. PLASTER ROOM
28. OFFICE
29. LABORATORY
30. LOBBY
31. DOCTOR'S LOUNGE
32. SUN ROOM
33. CASHIER
34. DELIVERY ROOM
35. LABOR ROOM
36. ISOLATION
37. NURSERY
38. NURSES' LOUNGE
39. OPERATING ROOM
40. EMERGENCY ROOM
41. SURGICAL UTILITY



SECOND FLOOR PLAN



FIRST FLOOR PLAN



GROUND FLOOR PLAN





*A county-wide petition for a bond election resulted in the city and county hospital at Baird, Texas. Architectural concrete was the logical medium for*

# City and County Hospital—Baird, Texas

By C. R. GASKILL, JR., ARCHITECT\*

ONE day during the middle of summer, 1938, the Callahan County Luncheon Club was enjoying a good meal. Among the members present was a group vitally interested in an important civic project. As the meeting reached the point of new business, the leader of this group made a proposal which ultimately resulted in the building of a new hospital for Callahan County and the City of Baird. After some discussion at this meeting, a petition was drawn up for circulation among the voters of the county calling for a bond election to provide funds for the hospital. The election was called and, with enthusiastic support of civic leaders and the county commission, the hospital bonds were voted.

While the petition was making the rounds of the county, a building committee composed of business men were investigating the size, type and costs of a hospital to meet the requirements of the community. After considering all angles, it was agreed that architectural concrete was the material most likely to produce a building of long life, low upkeep and of the dignified appearance required for a civic project of this type.

Final arrangement of rooms includes a large waiting room, space for two doctors' offices and consulting rooms. Patients are cared for in 15 private rooms, some with connecting baths, a men's ward for eight and a women's ward

\*Abilene, Texas.

for five. An emergency room is located near the ambulatory entrance. Other facilities are noted on the accompanying floor plan.

The otherwise plain, flat wall areas produced by plywood

*Although little skilled labor was available, such finely executed work around the entrance was no difficult task under adequate supervision.*







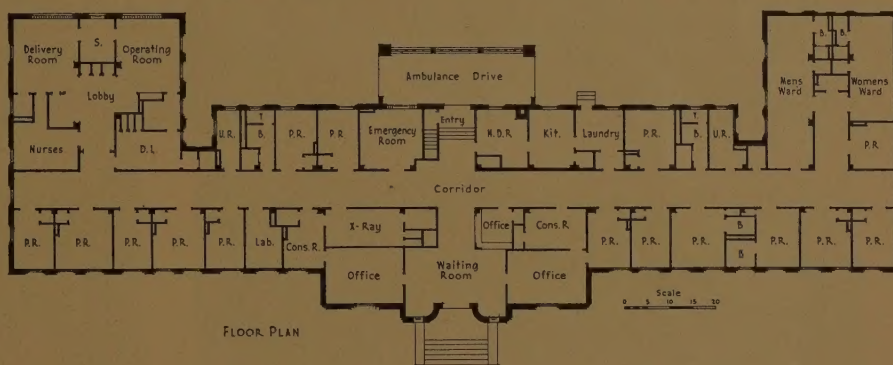
struction were available locally. It was built by local WPA labor from plans prepared by Architect C. R. Gaskill, Jr., of Abilene, Texas.

panels are relieved by simple ornamental details at coping, around windows and at corners. These details are easily formed as shallow recesses set back from the main wall surface just enough to produce shadow lines to accent the outline of the structure. Entrance returns fluted. All exterior wall treatment was formed with the same except some grille work at the ambulance drive which was cast on the concrete in six sections and raised into place. The columns which support the entrance grilles were cast in place. Inside the faces of the walls are furred and plastered. The exterior is finished with white portland cement paint.

Since Baird is in the area of rather intense summer sun, the flat concrete roof is flooded with water to a depth of six inches during the hot months. The water is controlled by means of a float valve on the roof. During winter months, the building is heated by means of a circulating warm air system.

This hospital has been in operation for about two years with very gratifying results. The building has met every expectation and now that the shrubbery which surrounds it has matured it is one of the most pleasing looking structures in the county. Much credit for the fine appearance of the building must go to the WPA workers who faithfully carried out the plans and specifications to produce a good concrete structure.

Under the able management of Dr. Ray Cockrell, county health officer, and the assistance of the governing board—L. L. Blackburn, chairman, Earl Hays, Ace Hickman, Roy Kendrick, I. B. Mobley and O. D. Strahan, the hospital is performing a splendid service to the citizens of the county and its continued success is assured.

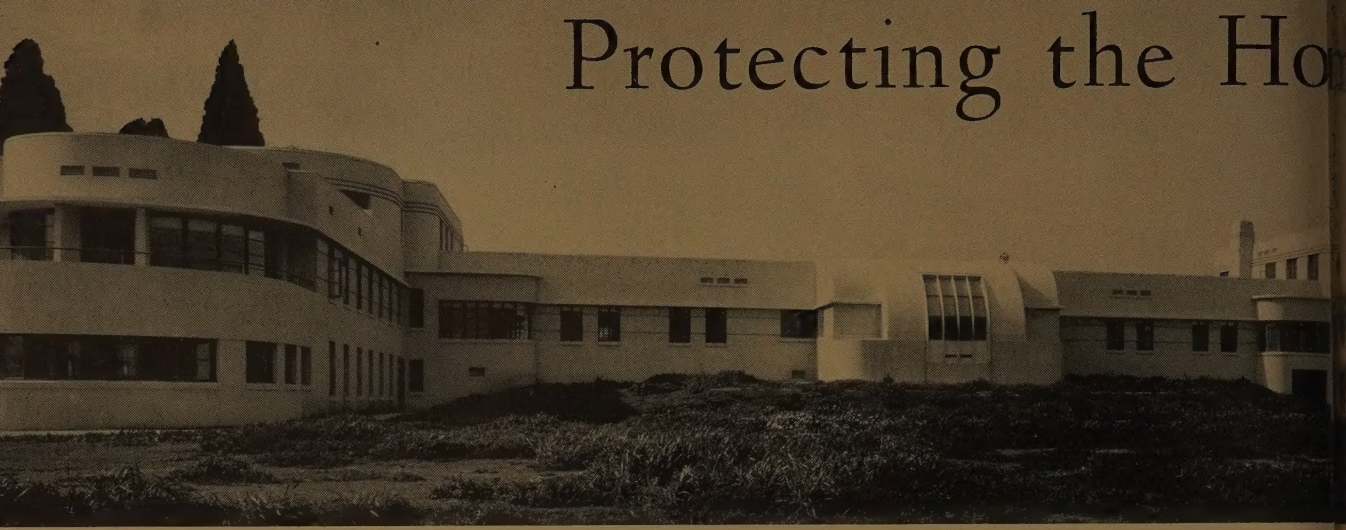


*The building was given a finish of white portland cement paint. The flat roof is covered with water during summer to insulate against the hot sun.*

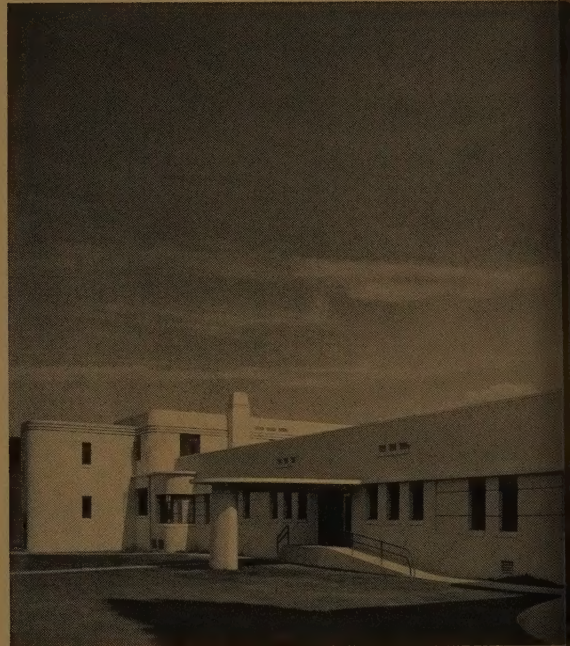




# Protecting the Ho



*Butte County Hospital, at Oroville, Calif., (above and right) is a streamlined solution for a modern hospital. Designed by George C. Sellon, architect, of Sacramento, it was built by WPA labor.*

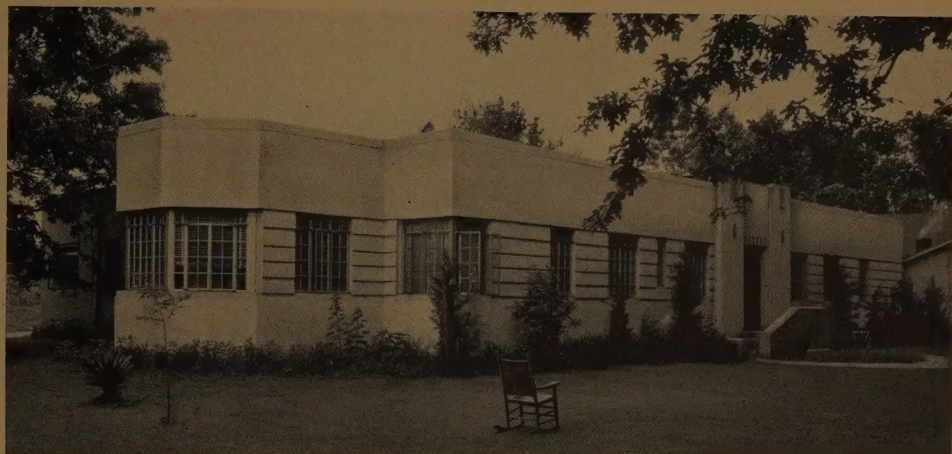


*(Left) John Brining Memorial Hospital at Dayton, Wash., first really modern hospital in this Northwest community, built by the Washington Emergency Relief Administration. W. Robertson, designing engineer.*

*Lake Shore Hospital, at Lake City, Fla., was built at a cost of \$40,000. Designed by Architect Ray Littlefield, of Lake City, it was built by*







(Top) Rosedale, Miss., has a lot of hospital for a total cost of \$18,000. Built of hollow double wall construction by G. C. Gardner and W. M. Priestly, it was designed by Overstreet & Town, Jackson, Miss., architects.

(Above) Another hollow wall concrete hospital designed by Overstreet & Town is the City Hospital, at Cleveland, Miss. It is finished with portland cement stucco.

Farthest north in the United States  
Municipal Hospital, at Warroad,  
Johnson & McLaren, Minneapolis,  
architects. WPA built it for a total  
\$9,670.







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